CLAIMS

what is claimed is:

1. An anti-fuse structure comprising:

a substrate having formed therein a contact region;

a metal silicide layer formed over and electrically connected with the contact region;

a first doped polysilicon layer formed upon the metal silicide layer;

an anti-fuse material layer formed upon the first doped polysilicon layer; and

a second doped polysilicon layer formed upon the anti-fuse material layer.

2. The anti-fuse structure of claim 1 wherein the metal silicide layer is formed from a metal selected from the group consisting of titanium, tungsten, cobalt, nickel, platinum, vanadium and molybdenum metals.

3. The anti-fuse structure of claim 1 wherein the anti-fuse material layer is formed from an anti-fuse material selected from the group consisting of amorphous silicon materials, amorphous carbon materials and dielectric materials.

4. The anti-fuse structure of claim 1 wherein a doped polysilicon layer is not formed interposed between the contact region and the metal silicide layer.

5. The anti-fuse structure of claim 1 further comprising a barrier layer formed interposed between the contact region and the metal silicide layer and contacting the metal silicide layer.

6. An anti-fuse structure comprising:

a substrate having formed therein a contact region;

a metal silicide layer formed over and electrically connected with the contact region;

a first doped polysilicon layer of a first polarity formed upon the metal silicide layer;

an anti-fuse material layer formed upon the first doped polysilicon layer; and

a second doped polysilicon layer of a second polarity opposite the first polarity formed upon the anti-fuse material layer.

7. The anti-fuse structure of claim 6 wherein the metal silicide layer is formed from a metal selected from the group consisting of titanium, tungsten, cobalt, nickel, platinum, vanadium and molybdenum metals.

8. The anti-fuse structure of claim 6 wherein the anti-fuse material layer is formed from an anti-fuse material selected from the group consisting of amorphous silicon materials, amorphous carbon materials and dielectric materials.

9. The anti-fuse structure of claim 6 wherein a doped polysilicon layer is not formed interposed between the contact region and the metal silicide layer.

10. The anti-fuse structure of claim 6 further comprising a barrier layer formed interposed between the contact region and the metal silicide layer and contacting the metal silicide layer.

11. A method for forming an anti-fuse structure comprising:

providing a substrate having formed therein a contact region;

forming a metal silicide layer over and electrically connected with the contact region;

forming a first doped polysilicon layer upon the metal silicide layer;

forming an anti-fuse material layer upon the first doped polysilicon layer; and

forming a second doped polysilicon layer upon the anti-fuse material layer.

12. The method of claim 11 wherein the metal silicide layer is formed from a metal selected from the group consisting of titanium, tungsten, cobalt, nickel, platinum, vanadium and molybdenum metals.

13. The method of claim 11 wherein the anti-fuse material layer is formed from an anti-fuse material selected from the group consisting of amorphous silicon materials, amorphous carbon materials and dielectric materials.

14. The method of claim 11 wherein a doped polysilicon layer is not formed interposed between the contact region and the metal silicide layer.

15. The method of claim 11 further comprising forming a barrier layer interposed between the contact region and the metal silicide layer and contacting the metal silicide layer.

16. A method for forming an anti-fuse structure comprising:

providing a substrate having formed therein a contact region;

forming a metal silicide layer over and electrically connected with the contact region;

forming a first doped polysilicon layer of a first polarity upon the metal silicide layer;

forming an anti-fuse material layer upon the first doped polysilicon layer; and

forming a second doped polysilicon layer of a second polarity opposite the first polarity upon the anti-fuse material layer.

17. The method of claim 16 wherein the metal silicide layer is formed from a metal selected from the group consisting of titanium, tungsten, cobalt, nickel, platinum, vanadium and molybdenum metals.

18. The method of claim 16 wherein the anti-fuse material layer is formed from an anti-fuse material selected from the group consisting of amorphous silicon materials, amorphous carbon materials and dielectric materials.

19. The method of claim 16 wherein a doped polysilicon layer is not formed interposed between the contact region and the metal silicide layer.

20. The method of claim 16 further comprising forming a barrier layer interposed between the contact region and the metal silicide layer and contacting the metal silicide layer.